has been determined by Bessel, Krueger, and Axel Möller, may detract from the importance of further investigation in this direction. Thus the sun's mass exceeds the mass of the planet,

1047·88 times according to Bessel, from elongations of fourth satellite.

1047·54 times according to Krueger, from perturbations of *Themis*.

1047·79 times according to Möller, from perturbations of *Faye's Comet*.

GEOGRAPHICAL NOTES

THE following form the series of scientific lectures to be delivered before the Royal Geographical Society during the present session, in pursuance of the scheme organised by the council two years ago:—"Geographical Evolution," by Prof. Geikie; "The Flora of the European Alps and its Connection with that of other Regions of the Earth," by Mr. John Ball, F.R.S.; and "The Modifications of the External Aspects of Organic Nature produced by Man's Interference," by Prof. Rolleston. The first two will be delivered some time before Easter, next year, and the last probably on the second Monday in May.

IN the absence of Lord Dufferin, the session of the Geographical Society was opened on Monday night by an address from Sir Rutherford Alcock, who reviewed recent exploring work.

AT the opening meeting of the Royal Geographical Society a paper by Signor L. M. d'Albertis, the well-known Italian naturalist, was read, descriptive of his three journeys up the Fly River, and his explorations of other parts of New Guinea. Perhaps the most interesting part of this very interesting paper was that which related to his earlier work when in company with Dr. O. Beccari in 1872. On that occasion they landed first on Sorong Island, between Salwatti and the mainland of New Guinea, in about S. lat. 0° 25′, and after making collections of plants and animals there, they moved on to Andai, near Dorei. During their stay there Signor d'Albertis explored the country to the foot of the high chain of mountains named Lapi Arfak. No one hitherto had been able to penetrate to the Arfak highlands, the home of the bird of paradise, and it is doubtful if the attempt had ever been made, owing to the fear entertained by the coast natives of the mountain tribes. Signor d'Albertis, however, succeeded in accomplishing this feat, for he lived for a month in a Papuan house at a height of 3,600 feet above the sea, and in the course of his daily shooting expeditions reached an altitude of 5,000 feet; so that with pardonable pride he claims to have been the pioneer of the Arfak mountains. Judging by the altitude he attained, he considers that the estimated height of the range—9,000 feet—is no exaggeration. From the point which he reached, 5,000 feet above the sea, the range runs uninterruptedly in a southerly direction, and joins that which constitutes the chief part of the backbone of New Guinea. As far as he could judge, separate streams issue from these ranges, giving origin to many small rivers which disembogue in the two bays known by the name of Geelwink. The mountains, even at the highest point he attained, are clothed with magnificent arboreal vegetation, but he was much astonished to find amongst the trees a species of oak and a conifer, the latter of which was afterwards recognised by Dr. Beccari as an *Araucaria*. Another point is worthy of notice; within a few minutes of the equator, in 134° E. long., all the climates of the world, except the Arctic, are represented, the tropical at the base and the temperate on the upper slopes and summits, both of which offer a rich variety of trees and plants. The same description applies to the neighbouring mountains where exist the most beautiful species of birds of paradise known to the world. In his second expedition Signor D'Albertis spent some time at Yule Island, on the southern coast, near Port Moresby, and he expresses a very decided opinion that this place will be of great importance as a centre of trade in the future.

A LETTER from Mr. Andrew Goldie is published in the *Sydney Morning Herald*, in which he gives some account of a cruise along the south-east coast of New Guinea. Mr. Goldie found the currents and calms a great source of danger. On the way down the coast Mr. Goldie discovered a group of islands (Redlich Group) not marked on the chart, and two splendid harbours, the finest by far that he has seen in New Guinea. He names them Glasgow and Millport harbours, and he has taken soundings and drawn plans, which he intends to forward to the proper quarter. The party visited Cloudy Bay and ascended the Robinson River, taking soundings there and all through the bay, and correcting many errors on the Admiralty chart. They discovered a new river on the west side of Cloudy Bay, which has been named the Blunden. During this trip Mr. Goldie has evidently not overlooked one of the main objects of his being sent to New Guinea, for he has collected 100 fresh skins of birds, different from those in the neighbourhood of Port Moresby, and he has also obtained a large and very valuable collection of curiosities.

THE late Admiral Sir George Back, who was for some time one of the vice-presidents of the Royal Geographical Society, has bequeathed to that body the sum of 600*l.* to be invested in Consolidated Bank Annuities, the conditions attached to the bequest being that the interest shall be paid or applied annually "to or for the benefit of such scientific geographers or discoverers, or person or persons who may then be engaged in discovery or exploration, and in such manner and form as the president and council shall determine." It is further provided that if in any year no person shall be deemed of sufficient merit to receive the prize, the interest shall accumulate and in some succeeding year be awarded to one or more persons who may be considered most deserving, in such proportions as the president and council of the Society may determine. Sir George has also bequeathed to the Royal Geographical Society a very characteristic portrait of himself painted many years ago by Brockeden.

MR. KEITH JOHNSTON, the commander of the expedition despatched by the Committee of the African Exploration Fund to explore the country between the road now being constructed from Dar-es-Salaam, on the east coast of Africa, and the north end of Lake Nyassa, leaves for Zanzibar to-day, in company with Mr. Joseph Thomson, as geologist and naturalist, and great hopes are entertained that, in addition to achieving good geographical results, they will be able to furnish much information respecting the hydrology and geology of the unknown region they are about to explore. Should the financial position of the fund admit of it, Mr. Johnston will extend his explorations northward to Lake Tanganyika, and return to the coast by a different route.

THE arrival at Provincetown, Massachusetts, on October 26, of the Arctic exploration schooner *Florence*, Capt. George Tyson, relieved the anxiety felt for her safety, after her reported departure on September 26, from St. John, New Brunswick. The *Florence* has met with hard usage throughout her whole voyage, and officers and men have suffered considerably. According to the log, the coldest weather experienced was 53° below zero.

M. LIAIS, director of the Rio de Janeiro Observatory, has written to the Paris Geographical Society, intimating that, owing to the liberality of the Emperor of Brazil, he had been enabled to begin the great work of determining by electric telegraph the longitude of Rio in comparison with Greenwich. When the operation shall have been

completed, the geographical position of every city in Southern America will be known with exactitude.

THE Annual Meeting of the Dutch Geographical Society took place at Delft on October 27, when interesting communications were made by the president regarding the exploring expedition sent to Sumatra by the Society. The explorers report having passed through a number of districts which had never been visited before by Europeans, but through the resistance offered by one of the native chieftains, the expedition has now unfortunately been discontinued, and most of its members are on their way back to Holland.

IT is stated that the Russian Minister of Communications will shortly send a special expedition to the Amu Darya district, to describe the new waterway formed by the overflow of that river.

THE *New York Herald* publishes a complete list of positions on the Amazon and Madeira rivers which have been determined by the United States Survey Expedition in the corvette *Enterprise*, Commander Selfridge. They are ninety-two in number. The survey has demonstrated that it is possible for vessels drawing sixteen feet of water to pass during nine months of the year, and by careful navigation during the whole year, up to St. Antonio, on the Madeira. The river is always practicable for vessels drawing only eight feet. The Upper Madeira is not safely navigable except between December and July. Every evening the officers specially charged with the duty landed and ascertained the latitude and longitude of the halting-place, with reference also to its bearings with respect to certain conspicuous stars north and south, east and west. Six careful sets of observations, at intervals, were made to determine the rate of the chronometer. The charts compiled are to be reduced and published at Washington.

NOTES

WE take the following from the *Times*:—At the meeting of the Council of the Royal Society on Thursday last, the following were nominated as council and officers for the year ensuing to be proposed for election at the anniversary meeting of the Society, which will be held on St. Andrew's Day, the 30th instant:—President, William Spottiswoode, M.A., LL.D.; Treasurer, John Evans, F.G.S., V.P.S.A.; Secretaries, Prof. George Gabriel Stokes, M.A., D.C.L., LL.D., and Prof. Thomas Henry Huxley, LL.D.; Foreign Secretary, Prof. Alexander William Williamson, Ph.D. Other Members of the Council—Frederick A. Abel, C.B., V.P.C.S., William Bowman, F.R.C.S., William Carruthers, F.L.S., Major-Gen. Henry Clerk, R.A., William Crookes, V.P.C.S., Sir William Robert Grove, M.A., Augustus G. Vernon Harcourt, F.C.S., Sir Joseph Dalton Hooker, C.B., K.C.S.I., D.C.L., Vice-Admiral Sir Astley Cooper Key, K.C.B., Lieut.-Gen. Sir Henry Lefroy, C.B., Lord Lindsay, P.R.A.S., Sir John Lubbock, V.P.L.S, Lord Rayleigh, M.A., Charles William Siemens, D.C.L., John Simon, C.B., D.C.L., Prof. Allen Thomson, M.D., F.R.S.E. It will be remarked that Sir Joseph Hooker has carried out his intention of retiring from the presidency.

PROF. WÜRTZ delivered his Faraday Lecture on Tuesday evening at the Royal Institution, and was entertained at dinner last night at Willis's Rooms. We hope next week to give a full account of the proceedings on both occasions.

PROF. GYLDÉN, Director of the Stockholm Observatory, has received the Cöthenius Medal of the German Leopold-Caroline Society of Science, for his important researches in astronomy.

WE understand that, at a meeting of the Professors of Queen's College, Cork, it was resolved to erect a memorial to the late Prof. Harkness, in the form of a stained glass window, in the Examination Hall of the College. It is understood that the friends of the late professor in that city and elsewhere will be invited to co-operate in raising the funds necessary for this purpose.

DR. O. FINSCH, the well-known Bremen naturalist, is about to start on a scientific tour to the Polynesian Seas; the expenses of the tour will be defrayed by the Berlin Humboldt Institution, and Dr. Finsch travels at the special request of the Berlin Academy of Sciences.

OUR Paris correspondent writes that the Werdermann electric light has attracted much attention there, and will very shortly be tried at the office of the *Temps*. The Jablochkoff light is still in operation at the Avenue de l'Opéra, but will be stopped at the end of this month, unless a new arrangement as to cost can be come to. Indeed, our correspondent informs us, unless the present price of this light is considerably modified, it is not likely to keep its place.

AMONG the latest news about the progress of electric lighting is an account of an interview with Mr. Edison, given in the *New York Sun*. His Electric Light Company proposes to light the public buildings and private residences of New York with electric lights. The electricity would be made by twenty or more engines, stationed in different parts of the city. Each station would have an engine and several electric generating agencies. He thinks that the engines will be powerful enough to furnish light to all houses within a circle of half a mile. He passes the wires right through the gas-pipes, and brings them into the houses. "All that will be necessary will be to remove the gas burners, and substitute electric burners. The light can be regulated by a screw the same as gas. He does not pretend that it will give a much better light than gas, but it will be whiter and steadier than any known light; nor does he know now that it will be cheaper than gas. To the question as to whether he could measure the amount of electricity used, Mr. Edison said he had made no attempt to discover a meter. "I know that it can be measured, but it may take some to find out how. I propose that a man pay so much for so many burners whether he uses them or not. If I find that this works an injustice why I shall try to get up a meter, but I fear it will be very hard to do it." Mr. Edison says, according to the *Sun*, that "electric generating machines could be placed upon steamboats and locomotives, and the boats and cars lighted by the action of the engines, but the instant that the machinery stopped the lights would go out." Country towns, with the use of the electric generating machines, could be lighted by water power. Any power could be used provided it was strong enough to turn the shaft of the machine with the necessary rapidity. In an article on the subject of Electric Lighting in yesterday's *Times* an account is given of an exhibition of a new electric light by the Electro-Dynamic Light Company of New York on the 29th ult. It is described as a very simple affair, consisting of a small pencil of carbon a little larger than an ordinary pin, connected by wires with an electric machine, and inclosed in a hermetically sealed glass globe, which is filled with pure nitrogen gas. The pencil of carbon is heated by the electric current to a temperature of from 30,000° to 50,000° Fahrenheit. In an atmosphere with which it cannot chemically combine the carbon is practically indestructible, and the light is therefore produced without any consumption of material. In the experiments made five lights were placed in different parts of the darkened room, and all were connected by wires with a small electric machine. In an adjoining room a simple key was placed in one of the three ordinary keyholes in one of the walls and turned a little. Two of the burners attached to a hanging chandelier in the centre of the room immediately glowed faintly, and as the key was turned still further around the glow increased until a brilliant and perfectly steady white light was obtained,